Trans-Lake Washington Project EIS Methodology Report – 6/10/02

Wetlands

Guiding Plans and Policies

- Endangered Species Act
- Rivers and Harbors Act, Section 10
- Clean Water Act, Section 401, and Washington State Water Pollution Control Act (Chapter 90.48 RCW)
- Clean Water Act, Section 404
- U.S. EPA / U.S. Army Corps of Engineers, Memorandum of Agreement on Mitigation, February 1990 (No Net Loss Policy)
- Coastal Zone Management Act
- Shoreline management regulations for Seattle, Medina, Hunts Point, Yarrow Point, Clyde Hill, Kirkland, Bellevue, and Redmond
- Critical / sensitive areas ordinances for Seattle, Medina, Hunts Point, Yarrow Point, Clyde Hill, Kirkland, Bellevue, and Redmond
- Corps of Engineers Wetland Delineation Manual, Environmental Laboratory, 1987
- Washington State Department of Ecology (Ecology), Washington State Wetlands Identification and Delineation Manual, 1997
- Governor's Executive Order 89-10 (Protection of Wetlands), 1989
- Governor's Executive Order 90-04 (Protection of Wetlands), 1990
- WSDOT Directive 31-12 (Protection of Wetlands Action Plan), 1990
- WSDOT Implementation Agreement (including appendices), 1993
- WSDOT Environmental Procedures Manual, Section 437, July 2001.
- The Fish and Wildlife Coordination Act
- The Shoreline Management Act and applicable local Shoreline Master Programs

Data Needs and Sources

Presence of wetlands will be determined based on review of existing information and in-field identification (as described below under *Identification Methodology*)

Review of Existing Information

- GIS base maps of the existing natural environment
  - Current digital orthophotography (to be provided by WSDOT)
  - National Wetland Inventory Wetlands Mapping (digital data available from Washington Department of Natural Resources, 2000)
  - Current wetlands mapping (where available) from Seattle, Medina, Hunts Point, Yarrow Point, Clyde Hill, Kirkland, Bellevue, Redmond, and King County
  - Current municipal boundaries for Seattle, Medina, Hunts, Point, Yarrow Point, Clyde Hill, Kirkland, Bellevue, and Redmond
  - Stream, water body and culvert mapping (where available) from Seattle, Medina, Hunts Point, Yarrow Point, Clyde Hill, Kirkland, Bellevue, Redmond, and King County
  - Shorelines of the State and their associated shorelands (where available) from Washington Department of Ecology, Seattle, Medina, Hunts Point, Yarrow Point, Clyde Hill, Kirkland, Bellevue, Redmond, and King County
  - Locations of all wetlands and buffers from previous studies of the study area. The GIS team will provide the data and analysis in spreadsheet and GIS formats.
  - Cut, fill, and edge of pavement lines for each proposed alternative. The design team will provide the data in GIS format so that it will overlay with the wetland and buffer base maps. The GIS team will perform calculations to determine the area of impacted wetlands and buffers for each proposed alternative.
- Paper Sources
  - U.S. Department of Agriculture Soil Survey Maps. The maps will be used to determine the location areas of hydric soils, which may include potential wetlands.
  - U.S. Geologic Survey Topographic Maps (7.5 minute Quadrangles). The information will be used to determine locations of topographic depressions and low-lying areas, which may contain wetlands.
  - U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory Maps (7.5 Minute Quadrangles). The information (if not provided in GIS) will be used to determine locations of potential wetland areas.
  - Critical/sensitive areas ordinances for Seattle, Medina, Hunts Point, Yarrow Point, Clyde Hill, Kirkland, Bellevue, and Redmond

Proposed Coordination with Agencies

Federal, state, and local agencies will be contacted to discuss potential direct and construction impacts on wetlands, shorelines, and buffers. This coordination will include up to two field trips with agency staff. Agencies may include USFWS, WDFW, NMFS, USACOE, EPA, and Ecology. Local agencies representatives may include those from King County, Seattle, Medina, Hunts Point, Yarrow Point, Clyde Hill, Kirkland, Bellevue, and Redmond.

Proposed Coordination with Team, WSDOT, and Sound Transit

Assessment of wetland impacts will be conducted through close coordination with the team leads of the water resources, fisheries, vegetation and wildlife, land use, and design disciplines and with WSDOT and Sound Transit staff.

The natural resources team will also work with the design team to identify potential impacts on wetlands, shorelines, and buffers. This will include identification of design options that may avoid, minimize, or mitigate impacts on wetlands and buffers.

- The design team will provide cut-and-fill lines and edge of pavement lines in a GIS format. The information will be used to evaluate potential impacts for each proposed alternative.
- The design team will provide general information about construction including methods, timing, duration, and potential staging area locations. The information will be used to qualitatively evaluate potential construction-related impacts of each proposed alternative.

Study Area

The study area includes an area approximately 200 feet on either side of the proposed project footprint for each alternative. The study area will also include areas subject to the Shoreline Management Act (generally 200 feet from Shorelines of the State).

Affected Environment Methodology

Identification Methodology

Areas that are considered shorelines of the state will be identified according to the Shoreline Management Act criteria and mapping. Specific shoreline characteristics including vegetation, and substrate will be described based on field verification, aerial photography, and published information.

Wetlands will be identified in the field according to the 1987 *Corps of Engineers Wetland Delineation Manual* and the *Washington State Wetlands Identification and Delineation Manual.*

Wetland identification will be performed throughout the study area. Rights of access will be obtained by WSDOT for all parcels within the study area prior to beginning the fieldwork.

Wetland boundaries will be identified and located using aerial photographs and hand-held Global Positioning System (GPS) technology. GPS points will be recorded at each wetland and wetland boundaries will be drawn onto the aerial photographs for incorporation into

GIS format. In large wetlands, GPS points will be taken approximately every 25 to 50 feet along the wetland boundary. In areas where the wetland edge is more sinuous or the wetlands are very small, GPS data points may be closer. Flagging will not be tied in the field and there will be no associated survey. Wetland and upland data plots will be taken in the field as needed to determine wetland boundaries. Wetland boundary delineation and survey will be performed at a later date, possibly as part of the permit approval process after a preferred alternative has been selected. The use of GPS in the wetland field identification- phase will provide wetland boundary data that are accurate enough to determine the size of the wetland and to calculate impacts. All GPS data gathered in the field will be post-processed to obtain the most accurate satellite readings available. Information taken from the National Oceanic and Atmospheric Administration (NOAA) web site (or an equivalent source) will be used to correct the data gathered in the field. The expected positional accuracy of the GPS data points is approximately 3 to 10 feet

In some locations, local variations in topography, vegetation, and soils might create a complex mosaic of wetland and upland. In these areas, the boundary for the entire feature will be identified. The relative amounts of wetland and upland within the mosaic will be estimated, but individual upland inclusions will not be mapped.

Wetland Naming Convention

Each wetland will be assigned a unique designation, consisting of a two letter abbreviation for the drainage in which it is located, a single letter for direction (north or south of SR 520), and a number. An example would be PB N-1, which refers to Portage Bay and wetland number 1 on the north side of SR 520.

Wetland Classifications, Functions, and Ratings

Two wetland classification systems will be used to describe wetlands found within the study area. First is the Cowardin system (Cowardin et al. 1979), as used by USFWS. This comprehensive system allows for the classification of all types of wetlands, and existing inventories are readily available in map form. However, the Cowardin system cannot describe the species composition of wetlands. This weakness will be addressed by using a second system of wetland classification.

Second is the Washington State Department of Natural Resources system that classifies wetland communities according to native wetland vegetation associations. This system, described in *Preliminary Classification of Native, Low Elevation, Freshwater Wetland Vegetation in Western Washington* (by Linda Kunze of the Washington National Heritage Program [*1994*]), allows the user to classify wetlands based on the dominant plant species. The strengths of this system are its specificity and applicability to western Washington. Because this system was designed to describe native plant communities, disturbed wetland systems are not easily classified.

Wetland functions will be assessed using *The Wetland Functions Characterization Tool for Linear Projects* (WSDOT 2000). Wetland ratings will be determined using *The Washington State Wetland Rating System for Western Washington* (Ecology 1993). State Wetland Rating System forms will be provided in an appendix.

Wetland Descriptions

For each identified wetland, a brief description will be presented. This description will include:

- Wetland name/ID
- Location
- Wetland functions and values
- Wetland classification (Cowardin and Kunze)
- Ecology rating
- Local rating
- Approximate wetland size
- Connection or proximity to other wetlands and surface waters
- Dominant vegetation
- Soil conditions and evidence of hydric soils
- Wetland hydrology and supporting evidence
- Priority habitat species and National Heritage Program data, if any.

The field delineation and rating forms will be provided in an appendix.

Environmental Consequences Analysis Methodology

The environmental consequences analysis will assess potential direct and construction impacts of the project alternatives on wetlands, shorelines, and buffers in the study area. This discussion of impacts will be organized by alternative. Impacts that will be considered and described will include loss of wetland habitat due to placement of fill, impacts on wetland functions, wetland fragmentation or changes in connectivity between wetlands, and quantity and type of buffer encroachment .

Direct Impacts

This discussion will address impacts on wetlands (area and function), shorelines, and buffers resulting from long-term physical alterations to vegetation, hydrology, water quality, and soils. Specific disturbances include grading, filling, dredging, clearing of vegetation, alterations to the hydrology, and shading (where sufficient to prevent plant growth) of these resources.

The GIS team will calculate direct impacts using wetland boundary information collected in the field and proposed footprint information from the design team for each proposed alternative. The impact calculations for each wetland will be presented in a final summary table and will be organized by wetland category and Cowardin class.

Construction Impacts

Short-term, or construction, impacts associated with construction activity on wetland hydrology, vegetation, and soils will be described qualitatively.

Wetland Maps

The GIS team will prepare wetland maps that show the locations of all identified wetlands, state routes, compass orientation, areas of proposed impacts, streams, and surface water.

These maps will be prepared according to WSDOT mapping conventions. Large wetlands will be mapped as open-ended polygons. Areas not inventoried will be marked with cross-hatching or another means to indicate that the analysis does not cover that area.

Mitigation Measure Methodology

Recommendations for avoiding, reducing or compensating for impacts on wetlands, shorelines, and buffers will be presented for consideration in project design. Particularly sensitive areas will be addressed to allow for a reduction of the overall severity of impacts from an alternative. These may include modifications to the footprint, design features, construction timing limitations, specific construction techniques, and avoidance of particular areas. In areas where these wetland impacts cannot be avoided, design and construction practices that minimize impacts will be discussed. Finally, compensation for unavoidable loss of wetland and buffer areas or functions will be identified. This will include a discussion of potential opportunities to restore or create "new" wetlands in the study area. All measures will be developed according to the regulations and in consultation with the appropriate federal, state, and local agencies. Detailed mitigation planning and mitigation design drawings are beyond the scope of this report, but will be provided during project permitting.

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